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ABSTRACT

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Technical Report No. 419

IDENTIFYING SPONTANEOUS AND DELIBERATE BEHAVIOR
FROM NONVERBAL RESPONSES

by

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Report from the Project on
Studies of Instructional Programming
for the Individual Student

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ABSTRACT

Observers viewed silent videotapes of elementary school children listening to a lesson. Some of the stimulus children were listening to either a very easy or a very difficult lesson; consequently, their nonverbal behavior occurred naturally and spontaneously. Other stimulus children were instructed to pretend (role play) that they understood or did not understand the lesson; thus, their nonverbal behavior was deliberate or intentional. Observers were required to judge whether each stimulus person's behavior was spontaneous or deliberate. Results indicated that observers did significantly differentiate between spontaneous and deliberate behavior on the basis of facial responses alone. The findings are related to Ekman and Friesen's analysis of deception, and are interpreted in terms of information theory.

I

INTRODUCTION

Research has amply demonstrated that observers can detect accurately different moods and emotions from attending to nonverbal behavior alone (Ducan, 1969; Ellsworth & Ludwig, 1972; Frijda, 1969; Lanzetta, Cartwright-Smith, & Kleck, 1976). Moreover, nonverbal responses often reveal a person's true emotion or affect, even when an attempt is being made to conceal his or her true feelings (Ekman & Friesen, 1969).

According to Ekman and Friesen (1969), the dissembling individual displays both leakage cues (nonverbal responses indicative of underlying affect) and deception clues (nonverbal responses indicative of deception). They argue, further, that these responses may be readily observed in the body but not in the face. In western cultures there is presumably greater emphasis placed on the face than on the body; therefore, persons should have learned to control their display of facial expressions. The facial muscles are very highly innervated, so it is possible for an individual to maintain quite precise control over patterns of facial expression. In sum, then, persons supposedly lie better with their faces than with their bodies; as a consequence deception should be more accurately detected by attending to the body than to the face.

The hypothesis that deception is more easily detected by responses

from the body than from the face was tested in a study conducted by Ekman and Friesen (1974). Nursing students watched a pleasant and a stressful film in four viewing sessions. In sessions 1 and 2 the subjects saw the pleasant film and were instructed to behave honestly in their reactions. In session 3 the subjects saw the stressful film and were instructed to conceal any negative affect they might experience and try to convince an interviewer that they were actually watching the pleasant film. In session 4 the subjects again watched the stressful film, and reacted honestly. Videotapes of the viewing sessions were shown to observers who judged whether the person in each videotape segment was behaving honestly or deceptively.

Results showed that deception was detected more accurately by responses from the body than from the face--but only when the observers had initially seen an example of the encoder's honest behavior. Ekman and Friesen reported that judgments of facial behavior (with or without an example) did not exceed chance level. Furthermore, when stating how they had tried to accomplish the deception, the encoders more often mentioned trying to control their facial expressions than their bodily responses. The authors concluded that the data partially supported the hypothesis that deception is usually not revealed by facial responses.¹ McClintock and Hunt (1975) asked subjects to answer a series of questions posed by an interviewer "trainee." During the interview, subjects were occasionally instructed to lie when asked for an opinion on a controversial issue. Subjects were videotaped and the recordings were coded for various nonverbal behavior categories. The results indicated that the amount of eye contact

during deception was approximately equivalent to the level of eye contact during other portions of the interview. On the other hand, smiling (which may be an indicator of discomfort) occurred least often during deception and self-manipulatory body movements occurred most often during this condition. The authors concluded that deception is typified by calm facial behavior and active body movement.

McClintock and Hunt's (1975) analysis of nonverbal deception behavior must be treated cautiously. The subject's nonverbal behavior during deception was compared to his or her behavior while answering a few selected questions dealing with topics the subject had previously selected as highly enjoyable, highly unenjoyable, or indifferent. Results obtained in this manner do not reveal anything unique about the nonverbal topography of deception. Differences (or similarities) between the deception condition and the other three conditions may have resulted from the deception, the affect elicited by the question, or both. To identify uniquely the patterns of nonverbal behavior indicative of deception, deception behavior associated with a particular affective/cognitive state must be compared to honest, spontaneous behavior associated with the same affective/cognitive state.

Several lines of evidence can be adduced in opposition to the hypothesis advanced by Ekman and Friesen (1969, 1974). It has been found that individuals direct their gaze primarily at the other person's eyes during social interaction (Argyle, 1970). Persons establish and break eye contact, look briefly at other areas of the face, or look away. Social taboos and decorum prevent a person from looking at another's body in public interaction. Ekman and Friesen (1974)

report that decoding ability with facial cues did not exceed chance; therefore, they concluded that a person cannot distinguish accurately between honest and faked behavior in everyday interaction. This conclusion would be justified only if the nonverbal cues associated with honest and dishonest behavior were identical or very similar. Evidence germane to this point may be obtained from the research concerning spontaneous and deliberate (role played) behavior. Dissembling is essentially a role-played performance, especially in the situation used by Ekman and Friesen (1974). The subject deliberately encodes a set of behaviors inconsistent with his/her actual or true cognition. On the other hand, honest behavior represents a subject's spontaneous response to the stimulus situation. Conceptually, the relation between honest and deceptive behavior is synonymous with the spontaneous and role-played behavior.

Ekman, Friesen, and Ellsworth (1972) have suggested that nonverbal cues associated with spontaneous and deliberate behavior may be identical. They base their argument on cross-cultural similarity in the decoding of posed expressions; however, no direct evidence is offered concerning the similarity between spontaneous and posed nonverbal cues. Some relevant data are provided by Zuckerman, Hall, DeFrank, and Rosenthal (1976), but their analysis (correlation between two sets of decoding accuracy scores) does not indicate that the nonverbal behaviors were encoded similarly. The data merely suggest that observers can "scale" the various degrees of nonverbal behavior in approximately the same manner for both types of encoding. The proper test of the relation between spontaneous and role-play behavior

must begin with an objective analysis of the overt nonverbal cues associated with one emotion (or cognitive state) when encoded both spontaneously and deliberately.

Recent studies have shown that role-played behavior is qualitatively different from spontaneous behavior (Allen & Feldman, 1976a; Allen & Miller, 1976). In these studies children were videotaped while listening to an easy or difficult lesson; then they were asked to pretend to either understand or not understand a lesson. The videotapes were analyzed objectively for the occurrence of several types of nonverbal behaviors. Results revealed that the responses given in the role-play condition differed strongly from the responses given by the same child in the spontaneous condition. Some behaviors were common to both modes of encoding and merely differed in frequency of occurrence. More importantly, behaviors that never occurred in the spontaneous behavior were manifested in the deliberate behavior, and vice versa. This difference involved many facial cues, e.g., smiles, frown, head movements, and eye gaze.

Theoretical considerations lead to the expectation that honest or spontaneous behavior should be quite different from deception or deliberate behavior. Hunt (1941) has argued that deliberate nonverbal behavior (and particularly posed facial expressions) derives from a socially learned code. The cues involved in role-played behavior may be unrelated to spontaneous behavior. Ekman et al. (1972) and Zuckerman et al. (1976) both note that circumstances surrounding the elicitation of spontaneous and deliberate behavior are discrepant. For example, role-played behavior is typically directed towards an audience,

but spontaneous behavior often occurs privately. More important is the degree of conscious involvement in the production of behavior. Individuals are generally unaware of their spontaneous behavior, but role playing requires a high level of conscious involvement. The individual must plan his or her performance, decide which nonverbal cues are relevant, and the order of the encoding--in short, the person tries to present the behavior in an authentic manner. How is this complex task accomplished? It seems highly unlikely that the untrained individual would have knowledge of such specific information about nonverbal performance. A more plausible explanation is suggested by Hunt (1941). When deliberately producing nonverbal behavior, the encoder displays those nonverbal cues that typify the cognitive state portrayed. The choice is guided by the encoder's expectations or stereotypes about the particular cognitive state. The discrepancy between a stereotype and reality has been well documented in the person perception literature. Stereotypes are global generalizations which ignore individual differences; a stereotype represents a stimulus in its simplest and clearest form. Consequently, if an individual encodes stereotypic behavior when role playing, it can be expected that the performance will not contain the subtle nonverbal responses associated with spontaneous behavior. Indeed, Allen and Feldman (1976b) found that individuals tend to "overact" when role playing and exaggerate the behavior. Allen and Atkinson (1977) report that such differences are reliably detected by observers, i.e., the distinction between levels of understanding is more pronounced for role play than for spontaneous behavior.

The present study examines the detection of spontaneous (honest) and deliberate (dissembling) nonverbal facial behavior. Observers viewed silent videotapes of children who were (a) actually listening to an easy or a difficult lesson (i.e., their nonverbal behavior was spontaneous and honest), or (b) pretending to understand or not understand a lesson (i.e., their behavior was deliberate or deceptive). The observers judged whether the child in each videotape was encoding spontaneously or deliberately and understanding or not understanding the lesson. The major prediction of the present study is that observers will be able to distinguish between spontaneous and deliberate behavior from the observation of facial cues. Moreover, since deliberate behavior seems to be composed of stereotypic responses, accuracy of decoding for level of understanding should be greater for role play than for spontaneous behavior.

II

METHOD

Subjects

Subjects were 40 undergraduates (20 males and 20 females); their participation fulfilled partial requirements for an introductory psychology class. Subjects responded independently in same-sexed groups of two to five persons (depending upon subject availability).

Stimulus Materials

Stimulus materials for the present study were identical to those used by Allen and Atkinson (1977). Briefly, 16 fourth-grade students from a small-town parochial school were video-taped (head and shoulders view) while displaying each of four types of nonverbal behavior while listening to a lesson about electricity: (1) spontaneous comprehension--the lesson was very easy for the children, (2) spontaneous noncomprehension--the lesson was very difficult for the children, (3) role-play comprehension--the children were told to pretend that they understood a lesson which was very difficult, and (4) role-play noncomprehension--the children were told to pretend that they did not understand a lesson which was very easy. (In the spontaneous conditions the children were not aware that they were being recorded on video-tape.)

Four different stimulus tapes were prepared from the behavior of these 16 stimulus persons, in the following manner. Each child

appeared once on each of the four tapes, but displayed a different type of nonverbal behavior on each tape. For example, a particular child would be shown spontaneously comprehending on tape 1, role-playing noncomprehension on tape 2, role-playing comprehension on tape 3, and spontaneously not comprehending on tape 4.

Stimulus order within and between tapes was randomized, subject to two restrictions. First, mode of encoding (spontaneous or role-play), type of behavior (comprehension or noncomprehension), and sex (male or female) were completely counterbalanced within each stimulus tape. Each one of these four categories of nonverbal behavior was therefore displayed four times: twice by males and twice by females. Second, within each stimulus tape the same category of nonverbal behavior did not appear more than twice in succession. Each of the four tapes showed 16 children, with each child exhibiting one of four categories of nonverbal behavior. Each filmed segment of behavior lasted for approximately $2\frac{1}{2}$ minutes.

Apparatus

The stimulus tapes were presented to subjects by a closed circuit television system consisting of a Sony video-tape recorder (model 3650) and an RCA Lyceum studio monitor (model number JR345B). An electrical signaling apparatus was employed to record automatically the observers' responses. The apparatus has five booths that are separated from each other by plywood partitions. A series of nine switches is located at the front of each booth. The first four switches were used to record the subject's decision about the type

of behavior displayed on the film, and were labelled "natural and understanding," "natural and not understanding," "acting and understanding," and "acting and not understanding." The other five switches were used in making judgments of confidence on a five-point scale (1 = slightly confident; 5 = extremely confident). The apparatus was also equipped with time meters which measured response latency.

Procedure

Subjects were conducted to the experimental room and seated at the five booths. The experimenter explained to the subjects that they would see 16, 2½-minute, silent video-tapes, each depicting a fourth-grade child displaying one of four types of nonverbal behavior. After familiarizing subjects with the use of the switches, the experimenter described the specific procedure to use in answering. Subjects were told to watch each segment of video-tape, and to press the appropriate switch as soon as they believed that they knew what type of behavior they were viewing. This initial response was the subject's tentative decision, and could be changed as often as desired during the 2½-minute period. At the end of the viewing period, subjects were required to give a final decision and confidence in this decision.² The experimenter told the subjects (correctly) that their responses would be recorded automatically in the next room, and that no one else would see their answers.

After each segment of video-tape, the experimenter stopped the tape and asked subjects (via intercom) to indicate their final de-

cision. When each response was recorded, the experimenter instructed subjects to reset their switches for the next trial. All subjects were thoroughly debriefed at the end of the experiment, which required approximately one hour.

Design

The overall experimental design was a $4 \times 2 \times 2 \times 2 \times 2$ split-plot factorial. The last three factors are within-subjects variables based on variations in content of the behavior appearing on the stimulus tapes: mode of encoding (spontaneous, role-play), type of behavior (comprehension, noncomprehension), and sex of stimulus person (male, female). The between subjects variables are stimulus tape (1, 2, 3, 4) and sex of the observer (male, female). Ten subjects (5 males and 5 females) were randomly assigned to observe each stimulus tape.

Three dependent measures were obtained: (1) accuracy of final judgment concerning the type of behavior being observed, (2) confidence in final judgment, and (3) response latency (measured to the nearest 1/10 of a second).

Method of Analysis

After viewing each segment of film, observers indicated which of the four types of behavior they believed they had witnessed. This final judgment is based on the two dimensions: mode of encoding (role-play/spontaneous) and type of behavior (understand/not understand). A scoring system based solely on precise accuracy, i.e., correctness on both dimensions, obviously does not take account of the possibility of being accurate on only one of the dimensions. For

example, if an observer chooses the category "acting and understanding" when the stimulus person is in actuality "acting and not understanding," the choice is partially accurate since the mode of encoding was correctly identified.

To provide credit for partial accuracy, therefore, two separate accuracy scores were derived: (1) Accuracy for mode of encoding: An observer's response was defined as accurate if the mode of encoding (spontaneous/role-play) was correctly identified, regardless of the response given for type of behavior, and (2) Precise accuracy: A response was defined as accurate only if both dimensions were correctly identified. For precise accuracy, an observer's score for any film segment could be either 0 or 1; for the partial accuracy method, scores could range from 0 to 2 (incorrect on both dimensions, incorrect on one and correct on one, or correct on both) for each film segment. Accuracy scores were summed for the two stimulus persons in each cell of the eight-cell design. Thus, the range of scores for the precise accuracy coding was from 0 to 2, and the range for the mode of encoding accuracy scoring was from 0 to 4.³

III

RESULTS

An initial analysis did not reveal any significant differences on the dependent measures across the four stimulus tapes. Consequently, the data were collapsed across the stimulus tapes for the analyses reported below.

Mode of Encoding Accuracy

When scoring accuracy for mode of encoding, an observer's response was considered correct if the stimulus person's behavior was identified accurately as being spontaneous or deliberate (role play) behavior, regardless of whether the judgment about understanding or not understanding had been correct as well. A $2 \times 2 \times 2$ analysis of variance was conducted on these data (sex of observers/mode of encoding/sex of stimulus person).

Results showed a main effect for mode of encoding, $F(1, 38) = 11.50$, $p < .005$. Observers were more accurate in decoding deliberate (role play), ($M = 3.03$) than spontaneous behavior, ($M = 2.43$). An interaction was found between mode of encoding and sex of stimulus person, $F(1, 38) = 4.55$, $p < .05$. In spontaneous encoding, judgments about the male stimulus persons were slightly more accurate than judgments about females; but under deliberate encoding, the accuracy was much higher for female than for male stimulus persons. The means for this interaction are shown in Table 1.

TABLE 1
MEANS FOR MODE OF ENCODING ACCURACY

Sex of Stimulus Person	Mode of Encoding	
	Spontaneous	Deliberate
Male	2.50	2.85
Female	2.35	3.20

Note: Higher numbers indicate greater accuracy (maximum score = 4.00).

Precise Accuracy

A second analysis was conducted in order to examine the observer's accuracy at a more molecular level. The method for scoring precise accuracy takes into account both the dimensions of stimulus children's behavior (mode of encoding and type of behavior). For each of the 16 videotape segments, an observer's response was given a score of +1 only if both dimensions were correctly identified.

A $2 \times 2 \times 2 \times 2$ analysis of variance (sex of observer/mode of encoding/type of behavior/sex of stimulus person) revealed a main effect for mode of encoding, $F(1, 38) = 49.04$, $p < .001$. Consistent with the more global analysis, observers identified deliberate behavior ($M = 1.28$) more accurately than the spontaneous behavior ($M = 0.69$).

Interactions emerged for mode of encoding $\times$ type of behavior, $F(1, 38) = 52.94$, $p < .001$ and for type of behavior $\times$ sex of stimulus person, $F(1, 38) = 26.93$, $p < .001$. Means for the interaction between mode of encoding and type of behavior are shown in Table 2.

In the case of spontaneously encoded behavior, the observers were more accurate in identifying comprehension than noncomprehension. But the opposite pattern of means occurred for deliberate behavior: accuracy was greater for noncomprehension than for comprehension. Inspection of means in Table 3 indicates that male stimulus persons were decoded less accurately than females when the type of behavior was comprehension, but this result was reversed when the stimulus persons were encoding noncomprehension.⁴

TABLE 2
MEANS FOR PRECISE ACCURACY AS A FUNCTION OF MODE OF
ENCODING AND TYPE OF BEHAVIOR

Type of Behavior	Mode of Encoding	
	Spontaneous	Deliberate
Comprehension	.85	1.01
Noncomprehension	.54	1.54

Note: Higher numbers indicate greater accuracy (maximum score = 2.00).

TABLE 3
MEANS FOR PRECISE ACCURACY AS A FUNCTION OF TYPE OF
BEHAVIOR AND SEX OF STIMULUS PERSONS

Sex of Stimulus Persons	Type of Behavior	
	Comprehension	Noncomprehension
Males	.71	1.14
Females	1.15	.94

Note: Higher numbers indicate greater accuracy (maximum score = 2.00).

The main effect for mode of encoding was further examined to determine whether or not observer decoding accuracy differed from chance expectation. For the mode of encoding, observers were 61% accurate when the stimulus children's behavior was spontaneous and 76% accurate when the behavior was deliberate. A 95% confidence interval calculated for chance expectancy (50%) extends from 35% to 65%. Thus, only the deliberate (role play) behavior was decoded significantly above chance. A similar confidence interval was calculated for precise accuracy (chance expectancy = 25%). The interval ranged from 12% to 38%. Consistent with the mode of encoding analysis, the deliberate behavior (64%) was decoded significantly better than chance, and the spontaneous behavior (35%) was not.

Confidence and Latency

After making each final decision the observers were asked to indicate their confidence. A 2 x 2 x 2 x 2 analysis of variance performed

on these data resulted in two significant main effects and one interaction. A main effect emerged for both mode of encoding, $F(1, 38) = 16.24$, $p < .001$, and type of behavior, $F(1, 38) = 4.46$, $p < .05$. Observers were more confident that their choices were correct with deliberate ($M = 3.56$) than with spontaneous behavior ($M = 3.14$), and with noncomprehension ($M = 3.45$) as opposed to comprehension ($M = 3.26$). An interaction was found between mode of encoding and type of behavior, $F(1, 38) = 9.36$, $p < .005$. As shown in Table 4, observers were more confident of their judgments for noncomprehension than for comprehension when the behavior was deliberate, (role play), but confidence for comprehension and noncomprehension was approximately equal with spontaneous behavior.

TABLE 4
MEAN CONFIDENCE RATINGS

Type of Behavior	Mode of Encoding	
	Spontaneous	Deliberate
Comprehension	3.17	3.34
Noncomprehension	3.11	3.78

Note: Higher numbers indicate greater confidence (maximum score = 5.00).

Observers were instructed to give a decision on each trial as quickly as possible. The latency between the onset of the film segment and the observer's initial decision was analyzed by a $2 \times 2 \times 2 \times 2$ analysis of variance. Results for the latency data showed a main effect for mode of encoding, $F(1, 38) = 11.44$, $p < .005$. Observers made their decisions faster for deliberate ($M = 65.1$ sec.) than for spontaneous ($M = 76.0$ sec.) behavior.

IV

DISCUSSION

Results of the present study indicated that observers can readily distinguish between spontaneous and deliberate nonverbal behavior from facial cues alone. Moreover, deliberate behavior was more accurately decoded than spontaneous behavior; in fact, accuracy of decoding exceeded chance levels only for the deliberate behavior. Coding for precise accuracy produced the same result: deliberate behavior was identified significantly above chance and spontaneous behavior was not. This finding is supported by the data from the supplementary measures. Observers made their initial decisions faster and reported that they were more confident when decoding deliberate behavior, as compared to spontaneous behavior.

Deliberate behavior was expected to be easier to decode than spontaneous behavior. As mentioned in the introduction, deliberate behavior seems to be composed of stereotypic responses; the encoder portrays a given behavior in the clearest and simplest manner possible. Objective analysis of deliberate nonverbal behavior indicates that this portrayal is created by using highly specific cues and displaying them repeatedly (Allen & Miller, 1976). For example, when the encoder is pretending to understand a lesson, he or she may use a head nod to indicate that the lesson is comprehended. Allen and Miller (1976) found that children displayed "head nodding" about 30 times

more frequently when pretending to understand (deliberate) than when actually comprehending the lesson (spontaneous).

Deliberate behavior contains a large number of nonverbal cues which are clearly associated with a given type of stereotypic behavior; such an ample supply of nonverbal cues will greatly facilitate decoding. The observer sees a cue many times, so the cognitive state that the encoder is trying to convey becomes apparent. This analysis is consistent with an information theory approach (Attneave, 1959). Decoding accuracy for any type of coded information increases directly with the degree of redundancy in the coded information. The greater the redundancy (as is found in deliberate behavior), the easier it is to decode the information.

With spontaneous behavior the observers were more accurate in decoding comprehension than noncomprehension, but these results were reversed for deliberate behavior. This finding is also amenable to an information theory interpretation. Several objective behavior categories (e.g., smiles, erect posture, head nods) occurred more frequently when the stimulus persons spontaneously understood the lesson than when they spontaneously did not understand. (Of those behavior categories for which a main effect for type of behavior was found, 75% were in this direction.) On the other hand, deliberate encoding resulted in more frequent nonverbal behavior (e.g., head shakes, mouth movement, eye movement) during noncomprehension than comprehension. (Of those behavior categories for which a main effect for type of behavior was found, 86% were in this direction.)

The high degree of redundancy in deliberate nonverbal behavior not only facilitates decoding for type of behavior (comprehension, noncomprehension), but also informs the observer that the behavior was produced intentionally. The deliberate performance does not look like spontaneous behavior: cues tend to cluster together, specific cues are repeated too frequently, and the behavior does not flow smoothly. In terms of information theory, the deliberate nonverbal performance does not maintain the constraints between elements that exist in spontaneous behavior.

Consider the first row in Table 5. A stream of spontaneous nonverbal behavior is represented by a sequence of letters. Let each letter represent a category of nonverbal behavior, e.g., direction of gaze, which would be analogous to parts of speech in spoken language, as depicted in the third column of Table 5. Thus, the category, "direction of gaze" contains the elements "eyes up, eyes down," etc., just as the category "adjective" subsumes the words "quick," "brown," and so on. The elements in a stream of nonverbal behavior are not arranged in random order; selection rules govern the ordering of the elements, just as grammatical rules govern sentence structure. These selection rules may be expressed as probabilistic constraints between the categories of a given nonverbal/spoken sequence. For example, if articles are used in an English sentence, they are always followed by an adjective or a noun. Consequently, the probability of finding an adjective or a noun following an article in a sentence is 1.0 and the probability that an article will be the last word in a sentence is 0. Similar probabilities can be calculated for other categories,

TABLE 5
LEVELS OF CONSTRAINT IN NONVERBAL BEHAVIOR

Type of Nonverbal Behavior	Representation	Verbal Equivalent
1. Spontaneous	abbc dbeac fabcec	the quick brown fox, although tired from the chase, jumped the high wall to safety
2. Random	bbacbbdf eaaccc e	tired quick the fox brown high although jumped, from the the safety chase wall, to
3. Deliberate	ccc dbdb fec cfec	fox fox fox, although tired although tired, jumped to safety, fox jumped to safety

and the constraints may be considered to extend from only the directly preceding element to an infinite number of preceding elements (Miller & Selfridge, 1950).

This probabilistic analysis also suggests that repetitive behavior will not be seen as spontaneous. For example, the occurrence of 20 adjectives preceding a noun is not grammatically incorrect; but the sentence would be considered a poor construction stylistically, and would require correction in order to resemble English. If these constraints are completely removed and the elements are ordered randomly as in the second row of the table, the resulting nonverbal behavior will be very different from spontaneous behavior. Observers would have little trouble recognizing the distinction. With deliberate behavior (row 3) the encoder partially ignores the constraints. Just as a reader might summarize a sentence, the deliberate encoder chooses the important elements of the nonverbal sentence and displays them repeatedly. The deliberate behavior display resembles the spontaneous behavior, as indicated in Table 5, but tends to be repetitious and disjointed. This high degree of redundancy is likely to be puzzling to the observer. Cues occur in novel sequences. The action takes place quickly, with short pauses dividing bursts of movement. The behavior does not appear natural to the observer and, consequently, it is judged to be deliberate. Indeed, many observers in the present study commented in the postexperimental debriefing session that the deliberate behavior was characterized by "overacting" or that the behavior looked "strange."

The present study demonstrated that observers can accurately identify deliberate nonverbal behavior from facial cues, a result which is inconsistent with Ekman and Friesen's (1974) formulation concerning the detection of deception. It should be pointed out that nonverbal dissembling (the term used by Ekman and Friesen) and deliberate nonverbal behavior (our term) are synonymous behaviorally. Both refer to the conscious portrayal of nonverbal behavior that stands in direct opposition to one's true feeling or cognition. In fact, the types of behavior that Ekman and Friesen (1969) describe as being deception clues are very similar to the behavior we found to typify deliberate behavior (e.g., vigorous behavior with rapid transitions).

Yet Ekman and Friesen's (1974) observers failed to detect deception from facial cues, although our observers were quite accurate in identifying deliberate nonverbal behavior. A possible explanation for this inconsistency lies in the nature of the observers' decoding task. Ekman and Friesen (1974) asked observers to judge whether a given stimulus person was being honest or deceptive. This is a very difficult task. To decide that a stimulus person is being deceptive, the observer must have some knowledge of the encoder's actual affect to use as a referent. The observer must detect what Ekman and Friesen (1969, 1974) have termed "leakage cues" in addition to detecting the deception clues. Unfortunately, leakage cues were not available in the Ekman and Friesen (1974) study. They note that since a comparison sample of honest behavior was necessary to produce a difference in detection of deception between cues from the face and from the body, the behavioral differences between honest and decep-

tive behavior were in the form of deception clues rather than leakage cues. (This finding suggests that Ekman and Friesen's [1974] observers merely compared the sample behavior to the test behavior and decided that deception was occurring if the two did not match.) It is not surprising that Ekman and Friesen's observers could not detect deception from facial cues. On the other hand, in the present study observers were asked to indicate whether a sample of behavior was spontaneous or deliberate. This judgment requires only that observers detect the "deception clues" which, as we have argued, are readily available in deliberate behavior. Consequently, the observers in the present study were able accurately to identify deliberate facial behavior.

Findings from the present study suggest that the detection of deception can be reduced to identifying deliberate behavior. At least two reasons can be offered for this conclusion. First, there are no available empirical data indicating that leakage cues are displayed by a dissembling individual. Therefore, evidence concerning detection of deception rests solely on the detection of deception clues--nonverbal responses which are also indicative of deliberate behavior. Second, it is more psychologically reasonable and meaningful (from an attributional perspective) that an observer would identify a global set of behaviors (such as deliberate behavior), and subsequently infer a specific causal antecedent (such as deception, ingratiation, sadness, etc.) depending on the situational constraints, rather than directly identify behavior as being deceptive, ingra-

tiating, and so on. The latter process demands a high degree of analytic ability and a knowledge of specific types of leakage cues, but the former process only requires the ability to identify behavior as inauthentic and then infer a cause.

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FOOTNOTES

¹Ekman and Friesen (1974) note that the face is not entirely devoid of meaning, and that deception clues and leakage may occur in micro-expressions (very brief movements not usually detected by the naive observer but which should be noticed by a skilled observer). Deception was detected accurately from facial cues when Ekman and Friesen's videotapes were shown to four highly experienced decoders.

²Subjects made only a few changes from their initial decision, so an analysis of change from initial decision was unnecessary.

³It should be noted that the precise and partial accuracy scoring methods represent different levels of decoding accuracy. Therefore, findings obtained in the precise accuracy analysis are conceptually independent of results revealed by the partial accuracy analysis.

⁴Although the difference between deliberate and spontaneous behavior was the primary purpose of the present study, an additional analysis was conducted to determine if observers differed in their accuracy for comprehension and noncomprehension. In the scoring, an observer's response was considered accurate if type of behavior (comprehension/noncomprehension) was correctly identified, regardless of judgment on the mode of encoding dimension (deliberate/spontaneous). A $2 \times 2 \times 2$ analysis of variance revealed only one significant effect: an interaction between type of behavior and sex of the stimulus person, $F(1, 38) = 34.59, p < .001$. Under conditions of comprehension females were more accurately decoded than males; but in the case of noncomprehension male stimulus persons were more accurately decoded than females. This finding, then, is completely redundant with the result obtained by using the precise accuracy method of scoring.

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